CARDI·OH

Ohio Cardiovascular and Diabetes Health Collaborative

SCHOOL OF MEDICINE
CASE WESTERN RESERVE UNIVERSITY

In partnership with:

THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER

COLLEGE OF MEDICINE AND LIFE SCIENCES THE UNIVERSITY OF TOLEDO

OHIO Heritage College of Osteopathic Medicine

Northeast Ohio Medical University

University of Cincinnati Family and Community Medicine

Boonshoft School of Medicine Wright State University

MedTAPP

Ohio Colleges of Medicine Government Resource Center

Ohio Department of Medicaid

Project ECHO®

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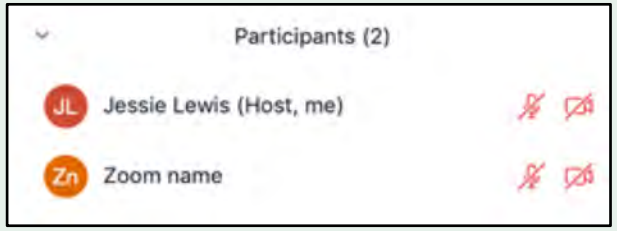
Cardi-OH ECHO Tackling Type 2 Diabetes

Thursday, April 1, 2021

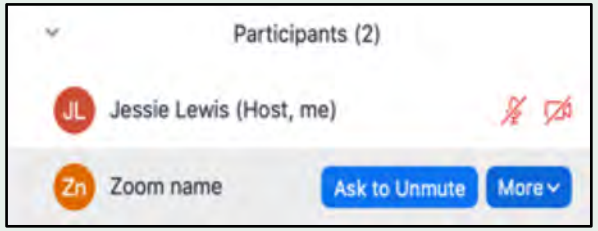
Reminders

- Enter your name and practice name into the Chat to record your attendance
- Rename yourself in the Participant List with your full name and practice name

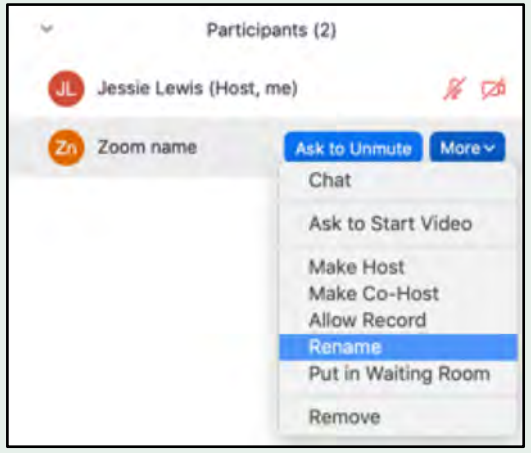
1. Hover over your name



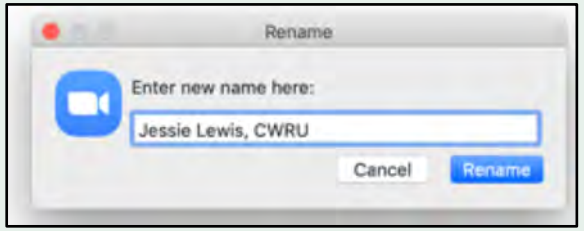
2. Select More



3. Select Rename



4. Type name and practice



- Mute your microphone unless speaking
- Comment or ask questions in the Chat at any time

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Fall 2021 Cardi-OH ECHO

Your Patient With Diabetes at High Risk for Heart Disease: A Series of Case Discussions

September 16 – December 9, 2021
Thursdays, 8 – 9 AM

Registration information to follow!

Cardi-OH ECHO Hub Team

LEAD

Goutham Rao, MD
Case Western Reserve University

FACILITATOR

Kathleen Dungan, MD, MPH
The Ohio State University

DIDACTIC PRESENTERS

Kathleen Dungan, MD, MPH
The Ohio State University

CASE PRESENTER

Sarah Wescott, DO, MS
Camden Clark Medical Center

Structure of ECHO Clinics

Duration	Item
5 minutes	Announcements and introductions
25 minutes	Didactic presentation, followed by Q&A
25 minutes	Case study presentation and discussion
5 minutes	Wrap-up/Post-Clinic Survey completion

Disclosure Statements

- The following planners, speakers, moderators, and/or panelists of the CME activity have financial relationships with commercial interests to disclose:
  - Kathleen Dungan, MD, MPH receives consulting fees from Eli Lilly and Tolerion, institutional research fees from Eli Lilly, Novo Nordisk, and Sanofi Aventis, and presentation honoraria from Nova Biomedical, Integritas, and Uptodate.
  - Adam T. Perzynski, PhD reports being co-owner of Global Health Metrics LLC, a Cleveland-based software company and royalty agreements for book authorship with Springer Nature publishing and Taylor Francis publishing.
  - Christopher A. Taylor, PhD, RDN, LD, FAND reports grant funding for his role as a researcher and presenter for Abbott Nutrition and grant funding for research studies with both the National Cattleman's Beef Association and the American Dairy Association.
  - Jackson T. Wright, Jr., MD, PhD reports research support from the NIH and Ohio Department of Medicaid and consulting with NIH, AHA, and ACC.
  - These financial relationships are outside the presented work.
- All other planners, speakers, moderators, and/or panelists of the CME activity have no financial relationships with commercial interests to disclose.

Microvascular Complications of Diabetes

Kathleen Dungan, MD, MPH

Professor, Associate Director Clinical Services

Division of Endocrinology, Diabetes & Metabolism

The Ohio State University

Goutham Rao, MD, FAHA

Chief Clinician Experience and Well-Being Officer, University Hospitals Health System

Jack H. Medalie Endowed Professor and Chairman

Department of Family Medicine and Community Health

Division Chief, Family Medicine, Rainbow Babies and Children's Hospital

Case Western Reserve University School of Medicine & University Hospitals Cleveland Medical Center

Objectives

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1. Review the initial approach to identifying and managing microvascular disease.
2. Discuss approaches to prandial insulin with meals.
3. Review a cost-conscious approach to glucose lowering medication.

	Components of Comprehensive Medical Evaluation	Initial	Follow-up	Annual
PMH/FH	• Diabetes history: duration, prior Rx, hospitalizations	X		
	• Family history: 1st degree relative, AI disease	X		
	• Complications/comorbidities			
	• Microvascular/macrovascular	X		
	• Hypoglycemia: awareness, frequency, cause/timing	X	X	X
	• Obesity, OSA, hypertension, hyperlipidemia	X		X
	• Visits to specialists: eye, dental	X	X	X
Lifestyle	• Eating pattern and weight	X	X	X
	• Physical activity and sleep	X	X	X
	• Tobacco, alcohol, substance use	X		X
Medications	• Current regimen, behavior, side effects	X	X	X
	• Complementary/alternative medicine	X	X	X
	• vaccinations	X		X
Technology	• Use of health apps, patient portal	X		X
	• Glucose monitor: results and use	X	X	X
Behavioral and Self-management	• Psychosocial			
	• Screen for depression, anxiety, disordered eating	X		X
	• Identify social support	X		X
	• Consider assessing cognition	X		X
	• DMSE: prior use, assess skills/barriers	X	X	X
	• Pregnancy planning	X	X	X
Exam	• BMI, BP	X	X	X
	• Skin: acanthosis nigricans, injection sites, lipodystrophy	X	X	X
	• Foot: visual, pulses, either temp/vib/pinprick + 10-g MF	X	*	X
Laboratory	• A1c (every 3 months)	X	X	X
	• Annual: Lipid, LFT, UMCR, Creatinine, vitamin B12 (metformin use), K+	X	#	X^

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*Each visit if neuropathy or prior ulcer/amputation

#more often if medication adjustments

^lipids may be less often if normal, not on therapy

Diabetes Care 2020;43(S1):S1-S212

Neuropathy

- Assessment annually starting at time of Dx of T2D
- Should include: history +
  - Temperature or pinprick (small fiber)
  - Vibration (125 Hz tuning fork—large fiber)
- 10 gm MF: identifies risk for foot ulcer/amputation
- Up to 50% is asymptomatic
- Diagnosis of exclusion
- Foot care/precautions
- Pain:
  - FDA approval: pregabalin, duloxetine
  - Gabapentin also widely used
  - Tapentadol is FDA approved for PSPN but not recommended first or 2nd line
  - TCA, venlafaxine, carbamazepine, topical capsaicin

Diabetes Care 2020;43(S1):S1-S212

Nephropathy

- Annual screening: urine albumin:creatine and eGFR
- If UA/cr >30 mg/g or eGFR < 50, perform repeat testing to confirm
- eGFR >30, especially if proteinuria consider
  - SGLT2i (A)
  - GLP1RA (C)
- Optimize BP <140/90, consider 130/80
- ACEI/ARB
- Dietary protein:
  - Not on HD: 0.8 g/kg/day (RDA)
  - On HD: consider higher intake
- Refer to nephrologist if eGFR <30 ml/min/1.73 m^2, rapid progression, or uncertainty in etiology

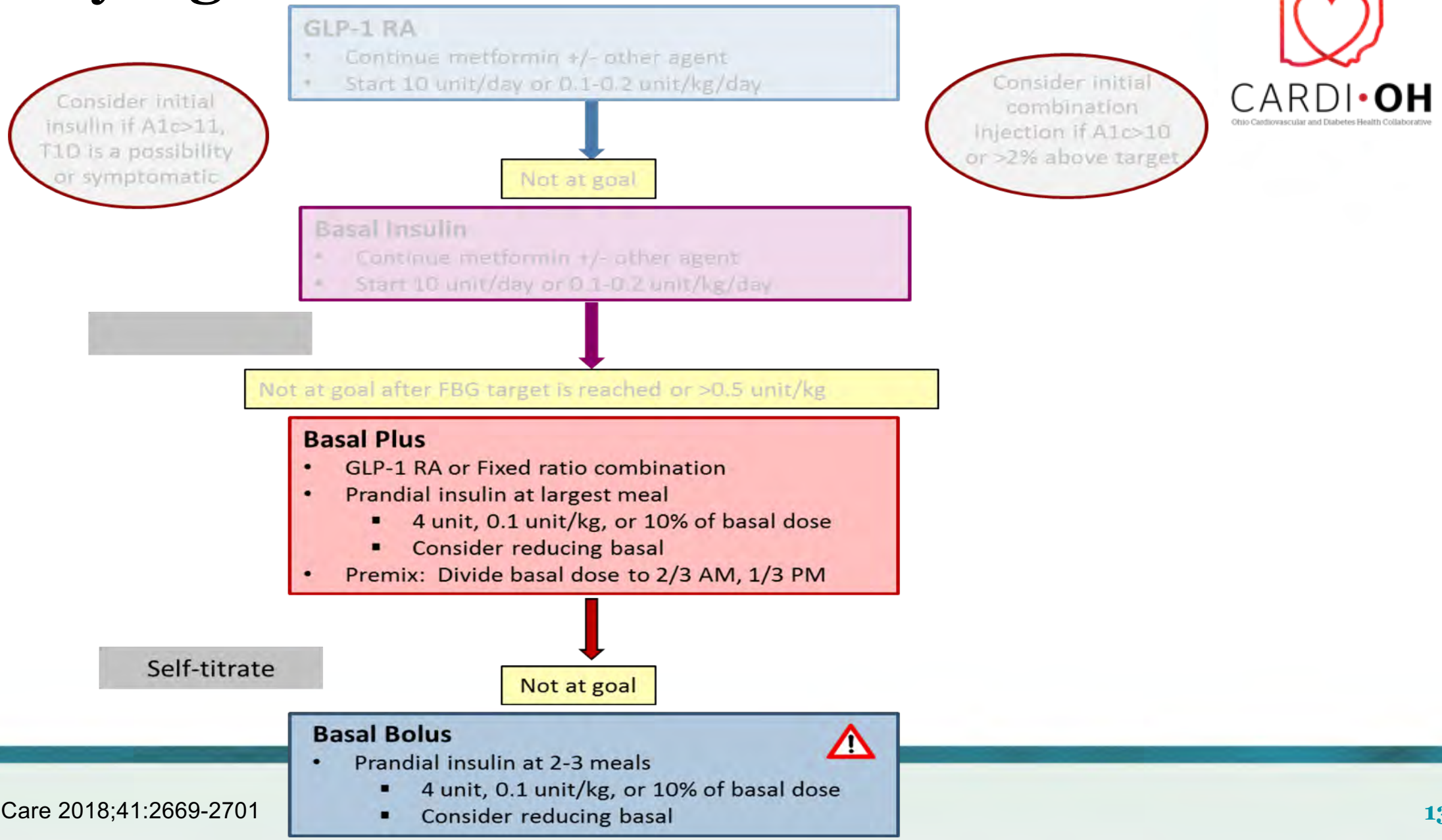
Diabetes Care 2020;43(S1):S1-S212

Retinopathy

- Optimize A1C, BP, lipids
- Dilated eye exam
  - At Dx
  - every 1-2 years if no DR
  - annually if +DR
  - Before or in first trimester of pregnancy and every trimester
- PRP: high risk PDR and some severe NPDR
- Intravitreous EGFR: PDR, central macular edema

Diabetes Care 2020;43(S1):S1-S212

Intensifying to Basal Plus



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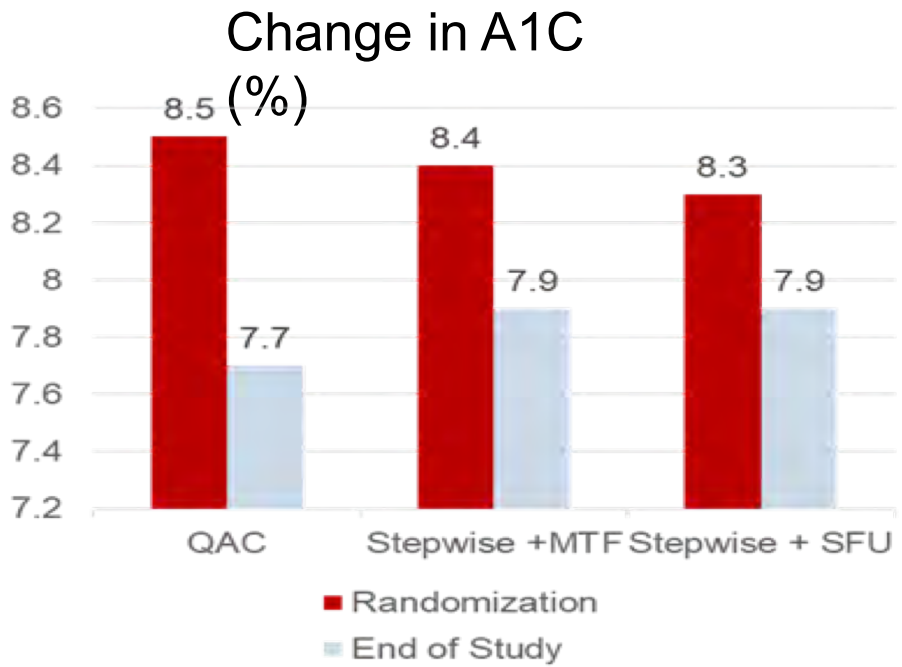
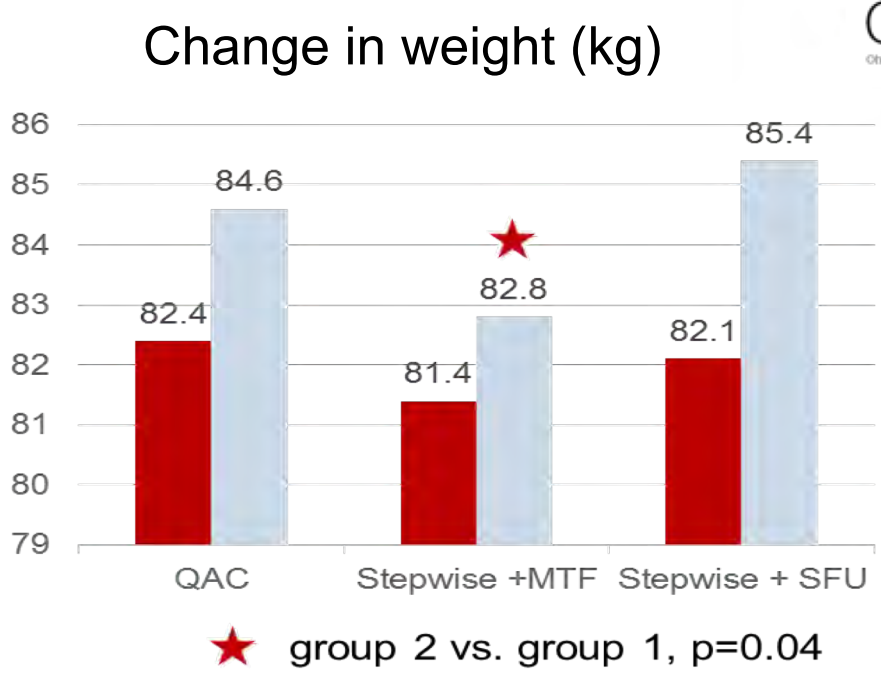
Davies et al. Dia Care 2018;41:2669-2701

Start With 3 Meals or 1 Meal?





- 476 patients with T2DM on basal insulin
- 6 month run-in followed by randomization if A1c >7, FBG >125
- Adjusted A1C difference failed non-inferiority (0.228, 95% CI: −0.018–0.473)
- Similar treatment satisfaction
- Greater nocturnal hypoglycemia in SFU vs. MTF

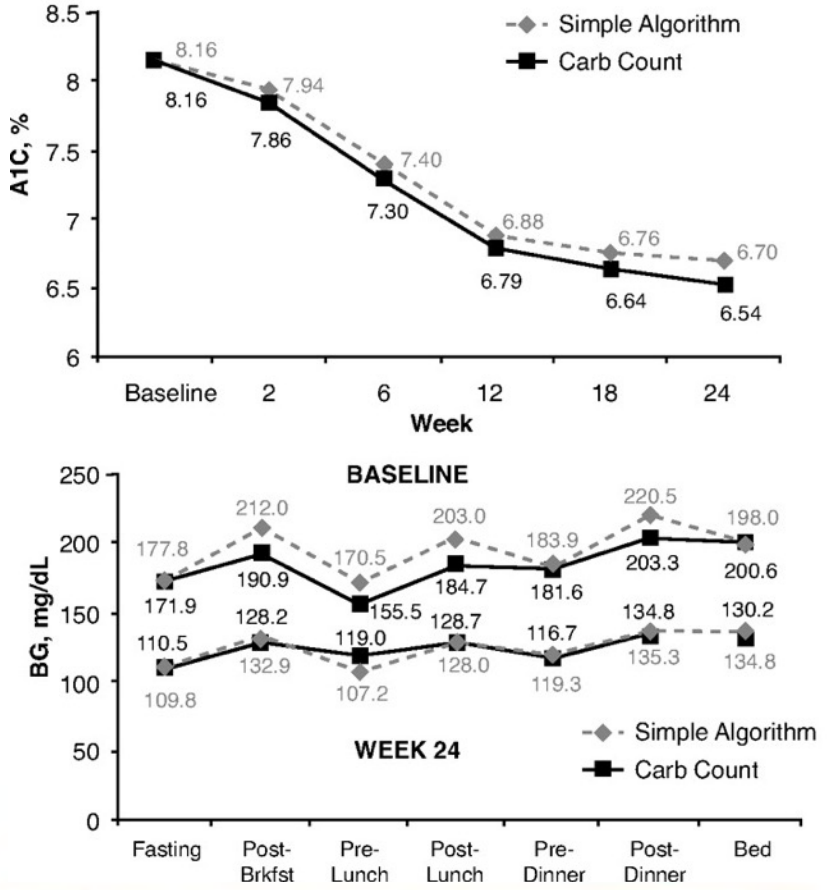
Raccah et al. Diabetes &; Metabolism, Volume 38, Issue 6, 2012, 507 - 514

Sliding Scale

- Ineffective as monotherapy→reactive
- Terminology: use “correction” or “sensitivity”
- May be useful <u>in addition to prandial insulin</u>
  - *<u>If</u>* patient can demonstrate competency with teach back method
  - Other tools: Smart insulin pens/apps, charts
  - Formulas:
    - Sensitivity= 1800/TDD
      - High: 25, Standard: 50, Low: 100
    - Correction dose = (current glucose – target) / Sensitivity

What About Carbohydrate Counting?

- 273 patients with T2DM
- Randomized to ICR or simple meal dosing (total daily meal dose split as 50%, 33% and 17% for largest, middle, and smallest meal)
- HbA1C reduction similar
- Severe hypoglycemia similar
- Carb counting: less weight gain, ↓insulin requirements



Bergenstal R M et al. Dia Care 2008;31:1305-1310

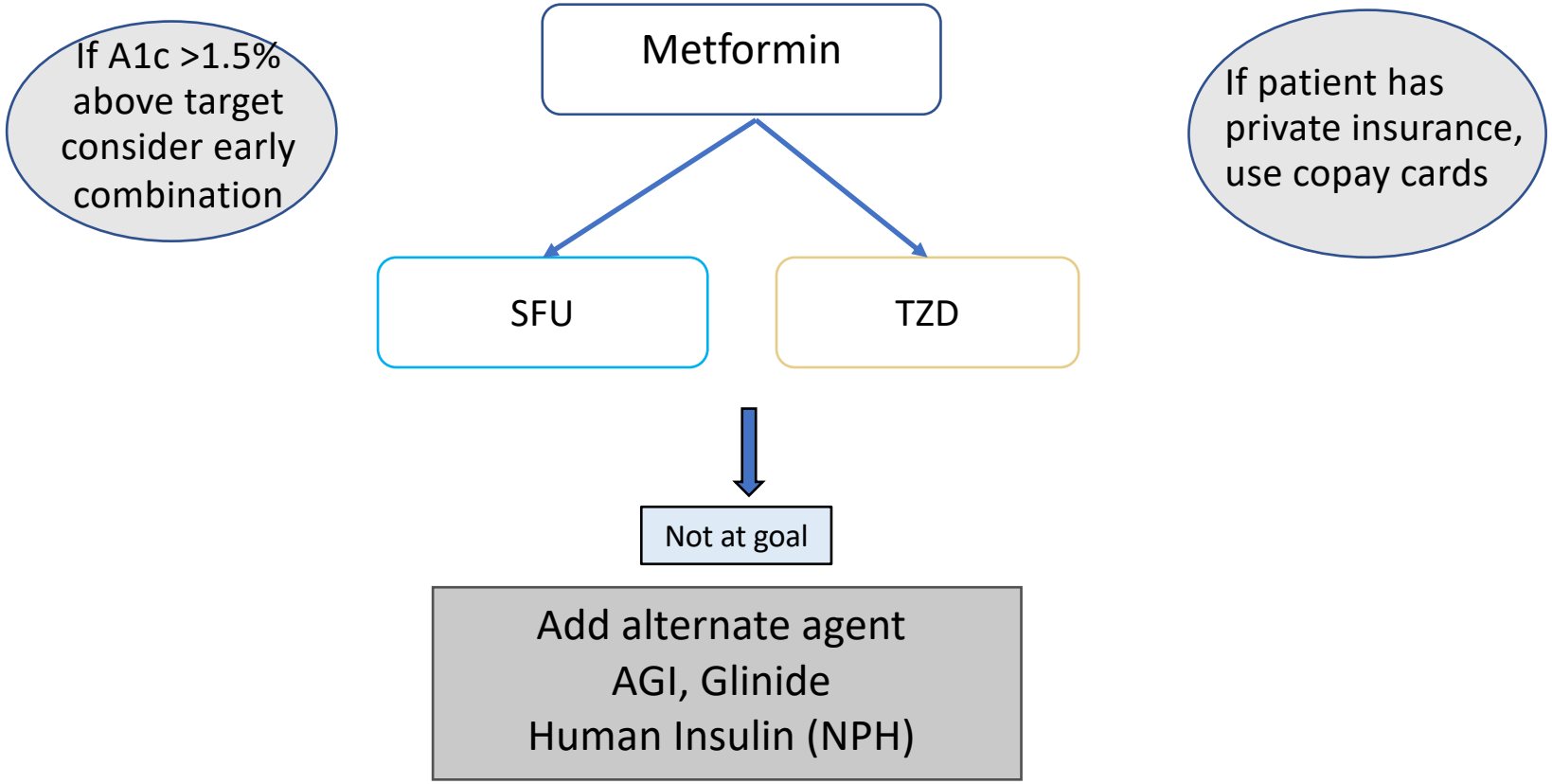
Carb Counting vs. Carb *Awareness*

- Consistent carb meals—set meal dose
  - Women: 45 gm carb/meal
  - Men: 60 gm carb/meal
- Big meal/small meal dose
- Carb:insulin ratio
  - CIR = 500/TDD
  - 1 unit/X grams carbs

Optimizing Basal Bolus Insulin

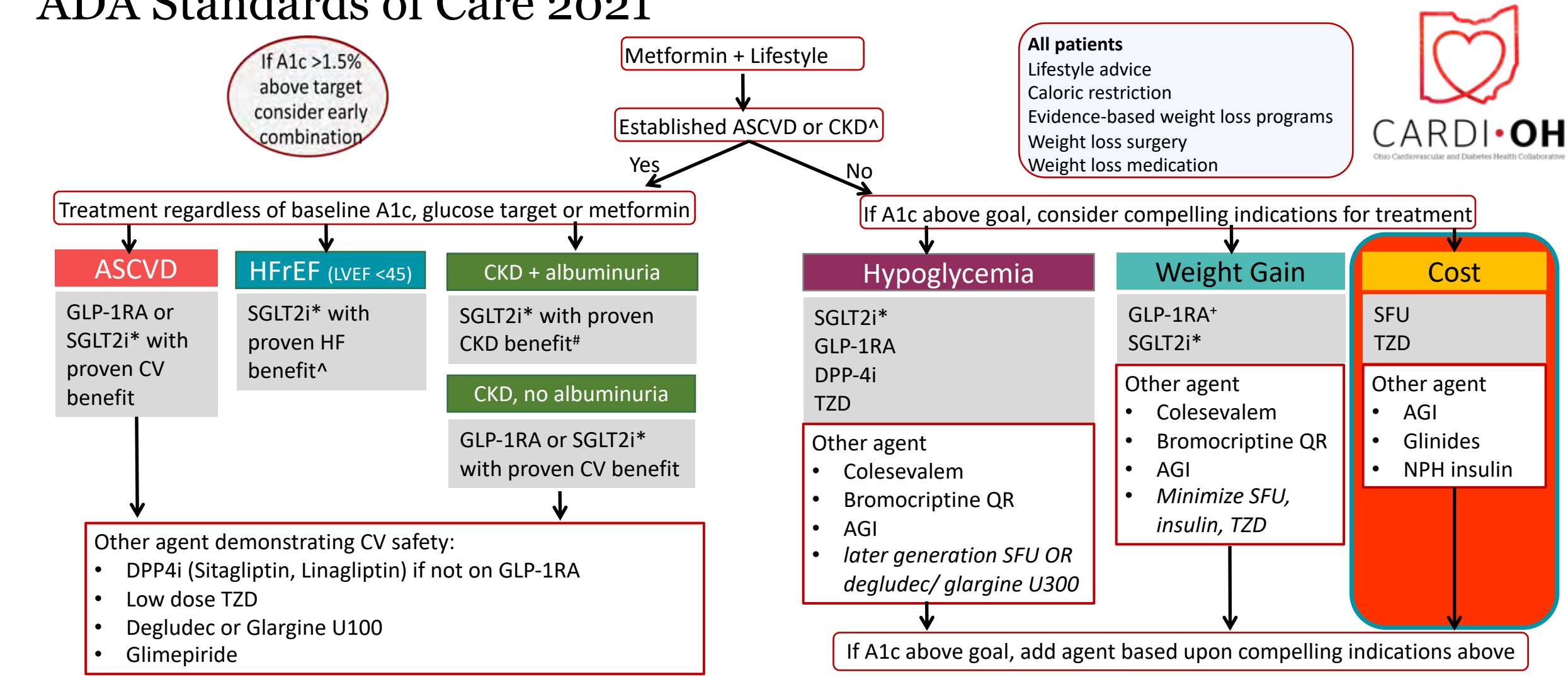
- Review adherence, simplify
- Refer to DSME
- Use insulin sparing Rx
- Manage carbohydrates, activity
- Insulin analogues, especially if hypoglycemia
- Ultra-long acting insulins (if needed)
- Concentrated insulins (>250 unit/day)
- Delivery: pump, smart pens, inhaled insulin

Glucose-Lowering Medication If Cost is Major Issue



Davies et al. Dia Care 2018;41:2669-2701

ADA Standards of Care 2021



*if adequate eGFR, ^Empagliflozin and dapagliflozin have shown benefit in dedicated HF studies. Canagliflozin has demonstrated reduction in hospitalization for HF in CV outcomes trials.
#Dapagliflozin and canagliflozin have demonstrated benefit in dedicated renal outcomes studies. Empagliflozin has demonstrated reduction in CKD progression in CV outcomes trials.
+Weight loss is greatest with semaglutide > liraglutide >dulaglutide >exenatide >lixisenatide

ASCVD=atherosclerotic cardiovascular disease, CKD=chronic kidney disease, GLP-1RA=glucagon-like peptide-1 receptor agonist, SGLT28i=sodium-glucose cotransporter-2 inhibitor, AGI=alpha-glucosidase inhibitor, SFU=sulfonylurea, TZD=thiazolidinedione

American Diabetes Association Dia Care 2021;44:S111-S124

Ohio Medicaid Formulary

	Preferred	Step Therapy*
Basal insulin	Lantus or Levemir	Tresiba
Bolus insulin	Humalog, Novolog Humulin R, U500	
Premix	Lispro or Aspart Premix	
Sulfonylurea	Glimepiride, glipizide, glyburide	
Glinide	Repaglinide, nateglinide	
DPP4i		Sitagliptin, Linagliptin
SGLT2i		Empagliflozin
GLP-1-RA		Liraglutide, Dulaglutide
Amylin analog		Pramlintide
Thiazolidinedione	Pioglitazone	
Alpha glucosidase inhibitor	Acarbose	Miglitol

Colesevalem is first-line for hyperlipidemia in setting of DM
Cycloset is not listed

*Inadequate response to metformin or failure of preferred agent

Other Considerations

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- No insurance: may qualify for manufacturer programs
- Private insurance: copay cards
- Cheap insulin: $25 vials of NPH, regular insulin
- FQHC or clinics with 340b programs
- Medicare: glucose monitoring is under medical benefit, not pharmacy benefit

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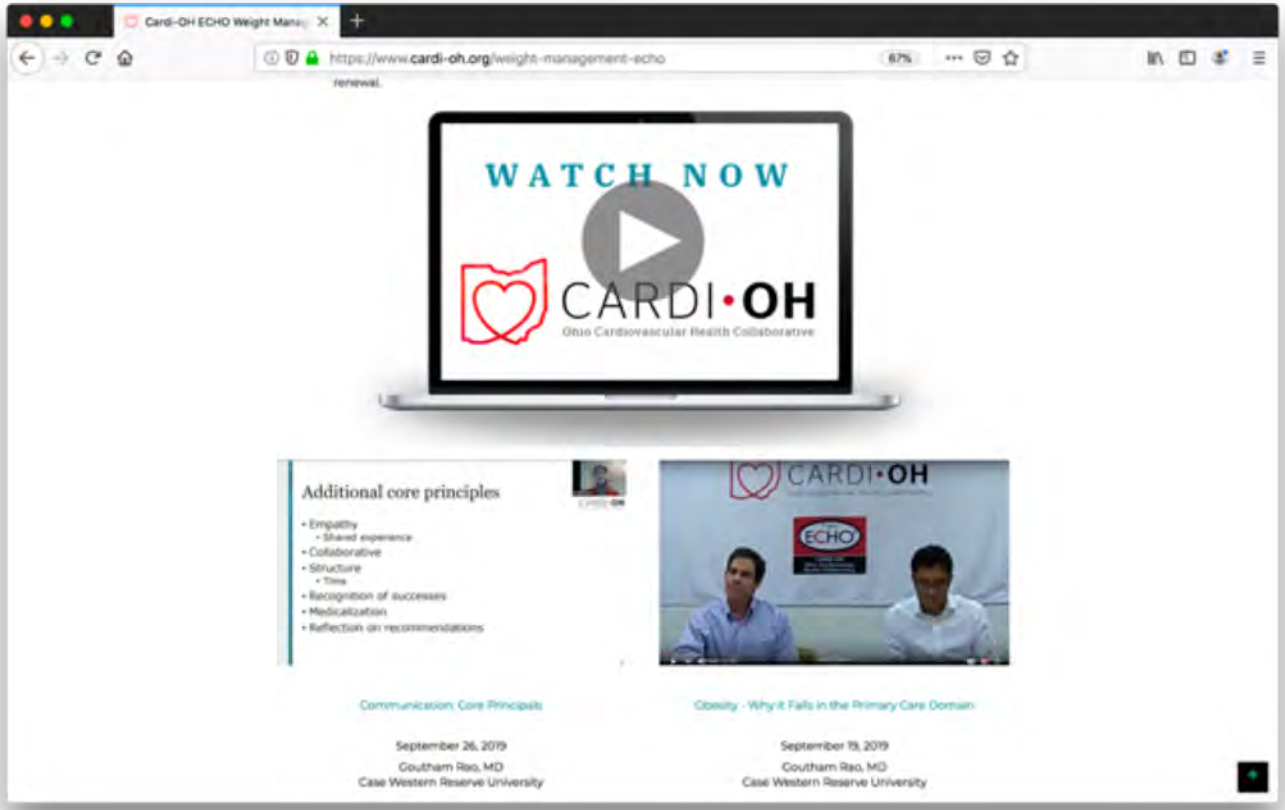
Thank you!

Questions/Discussion

Watch Previous Cardi-OH TeleECHO Clinics

Register on Cardi-OH.org to watch all Tackling Type 2 Diabetes TeleECHO Clinics:

https://www.cardi-oh.org/user/register
https://www.cardi-oh.org/echo/diabetes-spring-2021



Surveys

You will receive 2 surveys today:

1. The Post-Clinic Survey has been emailed to you. Please complete this survey **by Friday at 5:00 PM**.
2. The Exit Survey has also been emailed. Please complete this survey by Friday, 4/23/21.

CME

- *The MetroHealth System is accredited by the Ohio State Medical Association to provide continuing medical education for physicians.*
- *The MetroHealth System designates this educational activity for a maximum of 1 AMA PRA Category 1 Credit(s)TM. Physicians should only claim credit commensurate with the extent of their participation in the activity.*
- You will receive a survey from the CME office through **MyEvaluations.com** on 4/6/21
  - Register with MyEvaluations.com to begin this process
  - Please complete by Friday, 4/23/21

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Save the date!

Fall 2021 Cardi-OH ECHO

September 16 – December 9, 2021

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